

IN THE CLAIMS:

1. (Currently Amended) A protein having an amino acid sequence comprising at least 30 contiguous amino acids of SEQ ID NO:4, wherein said protein does not have a fatty acid acylated cysteine in position 29 immediately followed by the amino acid sequence Trp Asp Lys Glu (SEQ ID No:42), and does not have a C-terminal homoserine lactone.

2. (Original) The protein of claim 1 having an amino acid sequence comprising at least 50 contiguous amino acids of SEQ ID NO:4.

3. (Original) A protein having an amino acid sequence comprising at least amino acids 1-30 of SEQ ID NO:4.

4. (Original) The protein of claim 3 having an amino acid sequence comprising SEQ ID NO:4.

5. (Original) The protein of claim 1 which is an isolated protein.

6. (Original) The protein of claim 1 which is a fusion protein.

7. (Original) The protein of claim 6, in which the fusion protein is a thioredoxin fusion protein.

8. (Original) A composition comprising the protein of claim 1 and a pharmaceutically acceptable carrier.

9. (Original) The composition of claim 8, further comprising an adjuvant.

10. (Original) The composition of claim 8, further comprising at least one polypeptide selected from the group consisting of *Mycoplasma hyopneumoniae* P46, P65, P97 and P102.

11. (Currently Amended) An isolated immunogenic protein having an amino acid sequence as depicted in SEQ ID NO:2, or a fragment of the immunogenic protein, wherein the immunogenic protein does not have a fatty acid acylated cysteine immediately followed by the amino acid sequence Trp Asp Lys Glu (SEQ ID No:42), and does not have a C-terminal homoserine lactone.

12. (Canceled)

13. (Canceled)
14. (Canceled)
15. (Canceled)
16. (Canceled)
17. (Canceled)
18. (Withdrawn) An isolated or purified DNA encoding in the mycoplasma genetic code a protein having an amino acid sequence comprising at least 30 contiguous amino acids of SEQ ID NO:2, or its complement.
19. (Withdrawn) The DNA of claim 18, wherein the protein has a sequence comprising at least 50 contiguous amino acids of SEQ ID NO:2.
20. (Withdrawn) The DNA of claim 18, wherein the DNA has a sequence comprising at least 90 contiguous nucleotides of SEQ ID NO:1.
21. (Withdrawn) A DNA encoding in the universal genetic code a protein having an amino acid sequence comprising at least 30 contiguous amino acids of SEQ ID NO:4, or its complement.
22. (Withdrawn) The DNA of claim 21, wherein the protein has a sequence comprising at least 50 contiguous amino acids of SEQ ID NO:4.
23. (Withdrawn) The DNA of claim 21, wherein the DNA has a sequence comprising at least 90 contiguous nucleotides of SEQ ID NO:3.
24. (Withdrawn) The DNA of claim 22 operably linked to a heterologous promoter.
25. (Withdrawn) The DNA of claim 24 which further comprises an origin of replication active in a prokaryotic cell.
26. (Withdrawn) The DNA of claim 24 which further comprises an origin of replication active in a eukaryotic cell.
27. (Withdrawn) A host cell comprising the isolated DNA of claim 24.
28. (Withdrawn) The host cell of claim 27, wherein said cell is *E. coli* BL21 and said DNA is the expression vector pBAD/Thio-TOPO.
29. (Withdrawn) A method for the production of apo-Mhp3 or a fragment thereof, said method comprising (i) growing the cells of claim 27 under conditions wherein apo-Mhp3 is expressed, and (ii) recovering said protein.

30. (Withdrawn) The method of claim 29, wherein said protein is recovered in a soluble form.

31. (Withdrawn) The method of claim 29, wherein said protein is recovered in an insoluble form.

32. (Withdrawn) A method of treating or preventing a disease or disorder in an animal caused by infection with *Mycoplasma hyopneumonia* comprising administering to the animal a vaccine formulation comprising (i) the DNA of claim 20, and (ii) a pharmaceutically acceptable carrier, in an amount sufficient to elicit an increase in *Mycoplasma hyopneumoniae* specific cellular or humoral responses.

33. (Withdrawn) The method of claim 32 wherein said animal is a pig.

34. (Canceled)

35. (Canceled)

36. (Canceled)

37. (Canceled)

38. (Canceled)

39. (Canceled)

40. (Canceled)

41. (Canceled)

42. (Canceled)

43. (Canceled)

44. (Canceled)